

Translation

PATENT COOPERATION TREATY

PCT/EP2003/011729



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 772-1017 ge	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/011729	International filing date (<i>day/month/year</i>) 23 October 2003 (23.10.2003)	Priority date (<i>day/month/year</i>) 28 October 2002 (28.10.2002)
International Patent Classification (IPC) or national classification and IPC B25J 9/00		
Applicant KUKA SCHWEISSANLAGEN GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 27 May 2004 (27.05.2004)	Date of completion of this report 03 November 2004 (03.11.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/011729

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-15, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages 1-14, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the drawings:
 pages 1/5-5/5, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 03/011729

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-14	YES
	Claims		NO
Inventive step (IS)	Claims	1-14	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-14	YES
	Claims		NO

2. Citations and explanations

1. This report refers to the following documents:

D1: DE 10102758 A (Volkswagen AG) - 25 July 2002
D2: WO 03034165 A (Cimac Automation Limited) - 24 April 2003
D3: US 4254433 A (General Motors Corporation) - 3 March 1981.

2. Claim 1: Novelty

Document D3 is considered to be the prior art closest to the subject matter of claim 1. It discloses (the references in parentheses relate to this document):

a method of machining workpieces in the shell of a car body, the workpieces (14) being conveyed along a transfer line (12) by a conveyor (10) and machined by a stationary multiaxis robot (16), the workpieces being conveyed continuously and machined by the robot during the conveyor movement, the robot in its axial movements being synchronized with the conveyor movement, and the movement and the position of the workpieces

being detected using a sensory mechanism (camera 24) and signalled to a control system (28) that controls the robot.

The subject matter of claim 1 differs, then, from this known method in that:

- a) a plurality of multiaxis robots are disposed stationarily along the transfer line, and
- b) the control system controls the conveyor also.

The subject matter of claim 1 is thus novel (PCT Article 33(2)).

The problems to be solved with the present invention can thus be seen in that

- a) the method allows joint control of a plurality of robots, and
- b) the method affords greater flexibility in that the speed of the conveyor can be increased or decreased depending on the machining to be done on the workpieces.

3. Claim 1: inventive step

The solution to this problem as proposed in claim 1 of the present application involves an inventive step for the following reasons (PCT Article 33(3)):

To a person skilled in the art it would not be obvious to control the robot and the conveyor with a joint control system. In the prior art the conveyor is controlled independently and the synchronization

is guaranteed only by the robot's following the movements of the workpieces by means of sensory mechanisms. The conveyor, however, cannot be adjusted to the working conditions of the robot.

4. **Claim 2**

Claim 2 defines the machining installation corresponding to the method as per claim 1. Mutatis mutandis the subject matter of claim 2 therefore is also novel and involves an inventive step.

5. **Dependent claims**

Claims 3 to 14 are dependent on claims 1 or 2 and therefore also meet the PCT requirements for novelty and inventive step.

6. **Industrial applicability**

Claims 1 to 14 meet the PCT requirements for industrial applicability (PCT Article 33(4)).

7. **Observations preparatory to examination in the European phase**

With a view to entry into the European phase, the applicant is invited to take the following observations into consideration:

7.1 Under EPC Article 54(3), D2 also qualifies as prior art. This document discloses all the features indicated in claim 2. In claim 2 the statement that "the conveyor is connected to the control system" does not necessarily mean that the control system sends control commands to the conveyor. In D2 an encoder (5) is mounted on the drive mechanism of the conveyor and connected to the control system.

Moreover, in the description in D2 (page 5, line 3)

it is mentioned that the installation can contain more than one robot.

In order to obviate an objection with regard to novelty the applicant is advised to make it clear in claim 2 that the control system controls the conveyor.

7.2 Documents D1 and D3 should be named in the description. The applicant should clearly identify which features of the subject matter of the independent claims are already known from these documents.

7.3 Independent claims 1 and 2 should be written in the two-part form according to PCT Rule 6.3(b). The features known in combination from the prior art should be included in the preamble (PCT Rule 6.3(b)(i)) and the remaining features specified in the characterizing part (PCT Rule 6.3(b)(ii)).